

December 22, 2020

David Albright
Manager, Groundwater Protection Section
USEPA Region 9 (WTR-4-2)
75 Hawthorne Street
San Francisco, CA 94105

**Re: Transmittal of Quarterly Temperature Logging Summary, Q4 2020
Production Test Facility Westbay Wells: WB-01, WB-02, WB-03, and WB-04
Florence Copper Project, Florence Arizona**

Dear Mr. Albright:

Florence Copper Inc. herewith transmits the enclosed Technical Memorandum, *Quarterly Temperature Logging Summary, Q4 2020, Production Test Facility Westbay Wells: WB-01, WB-02, WB-03, and WB-04, Florence Copper Project, Florence Arizona.*

Please contact me at 520-316-3710 if you require any additional information.

Sincerely,
Florence Copper Inc.



Brent Berg
General Manager

cc: Nancy Rumrill, U.S. Environmental Protection Agency

Enclosure

TECHNICAL MEMORANDUM

TO: David Albright
USEPA Region 9

FROM: Brent Berg
Florence Copper

DATE: December 22, 2020

SUBJECT: Quarterly Temperature Logging Summary, Q4 2020
Production Test Facility Westbay Wells: WB-01, WB-02, WB-03, and WB-04
Florence Copper Inc., Florence, Arizona

Introduction

This Technical Memorandum presents the results of temperature logging for Production Test Facility (PTF) Westbay wells WB-01, WB-02, WB-03, and WB-04 during December 2020 for Florence Copper Inc. (Florence Copper) in Florence, Arizona. Westbay wells WB-01, WB-02, WB-03, and WB-04 are located within the Underground Injection Control (UIC) Permitted Area of Review for UIC Permit R9UIC-AZ3-FY11-1 and were completed as Class III multi-level monitoring wells for the PTF (Figure 1).

Florence Copper contracted Southwest Exploration Services, LLC to perform temperature logging to verify the absence of fluid movement through vertical channels adjacent to the well, in accordance with the 25 July 2019 UIC Permit Minor Modification.

Wells Logged

Florence Copper completed temperature logging of Westbay wells WB-01, WB-02, WB-03, and WB-04. Temperature runs were completed at least 4 hours apart after the wells had been shut in for 24 hours. The temperature logs were performed as listed in the following table.

Well ID	Temperature Log Date	Temperature Log Run 1 Time	Temperature Log Run 2 Time
WB-01	12/1/2020	8:40 AM	12:47 PM
WB-02	12/1/2020	9:36 AM	13:41 PM
WB-03	12/1/2020	7:46 AM	11:48 AM
WB-04	12/1/2020	6:40 AM	10:40 AM

As-built diagrams of the Westbay wells are provided in Appendix A and the temperature logs are provided in Appendix B. Daily average flow rates for the injection and recovery wells, and daily average water level elevations for the recovery and observation wells, are provided in Appendix C for the day temperature logs were conducted.

Findings

The temperature logging results for Westbay wells WB-01, WB-02, WB-03, and WB-04 show no anomalies that would indicate that there is flow behind the well casings. The temperature logs for each logging event reflect similar instrument readings for both the initial and secondary runs, resulting in parallel temperature traces on each of the log records for the entirety of the well.

Enclosures:

Figure 1 – Well Locations

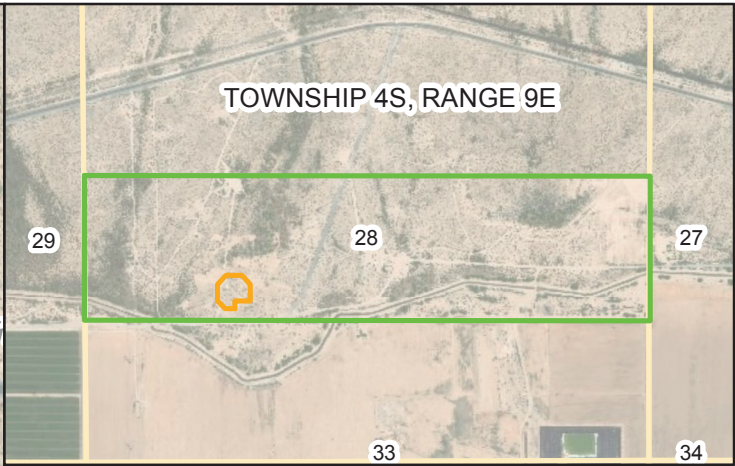
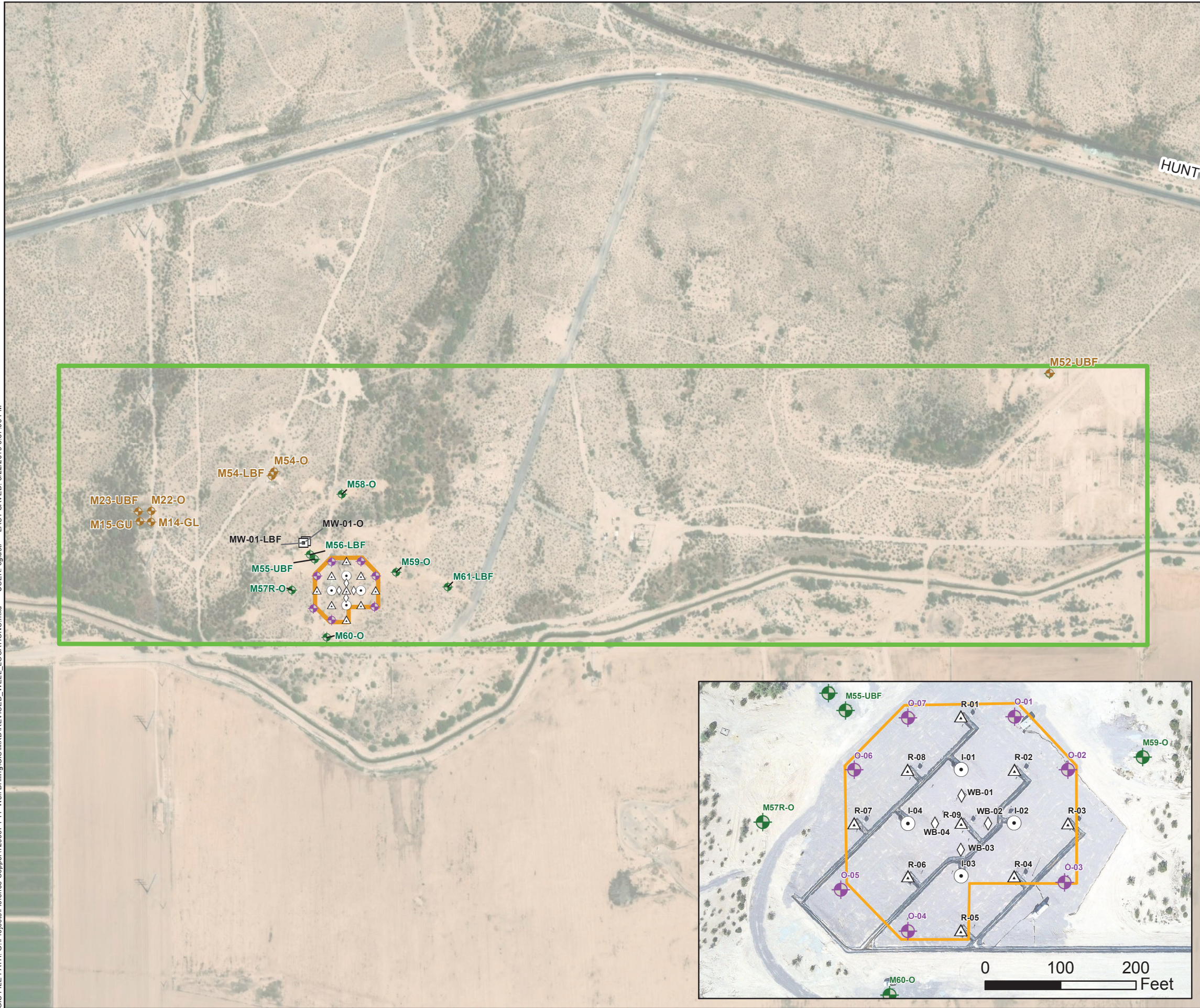
Appendix A – Westbay Well As-Built Diagrams

Appendix B – Q4 2020 Temperature Logs

Appendix C – Daily Average Flow Rates and Water Level Elevations

FIGURE

GIS FILE PATH: G:\Projects\Florence Copper\129687 PTF Well Drilling\GISMXD\REVISED_WELL_LOCATIONS.mxd — USER: cglusti — LAST SAVED: 5/22/2019 5:37:06 PM

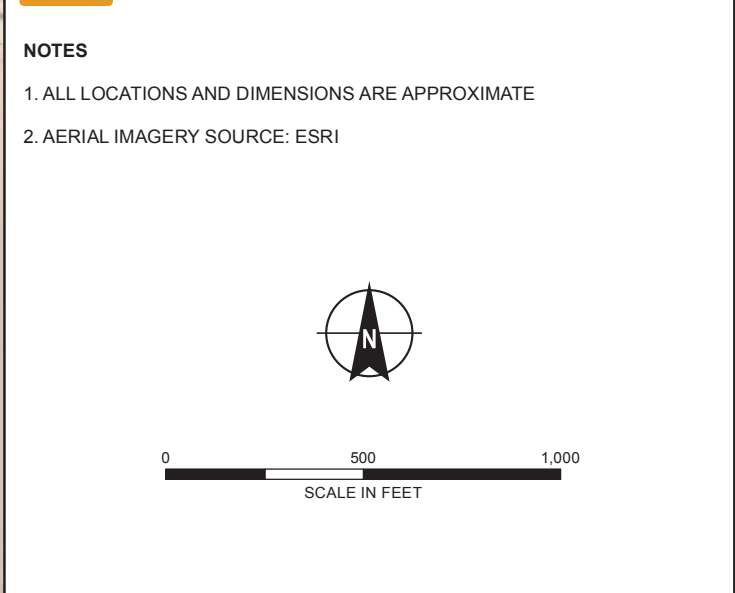


LEGEND

- INJECTION WELL
- RECOVERY WELL
- WESTBAY WELL
- OPERATIONAL WELL
- OBSERVATION WELL
- SUPPLEMENTAL MONITORING WELL
- POINY-OF-COMPLIANCE WELL
- STATE LAND LEASE
- PTF WELLFIELD

NOTES

- ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
- AERIAL IMAGERY SOURCE: ESRI



HALEY ALDRICH FLORENCE COPPER PROJECT
FLORENCE, ARIZONA

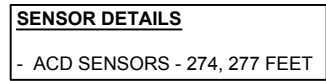
FLORENCE COPPER JUNE 2020

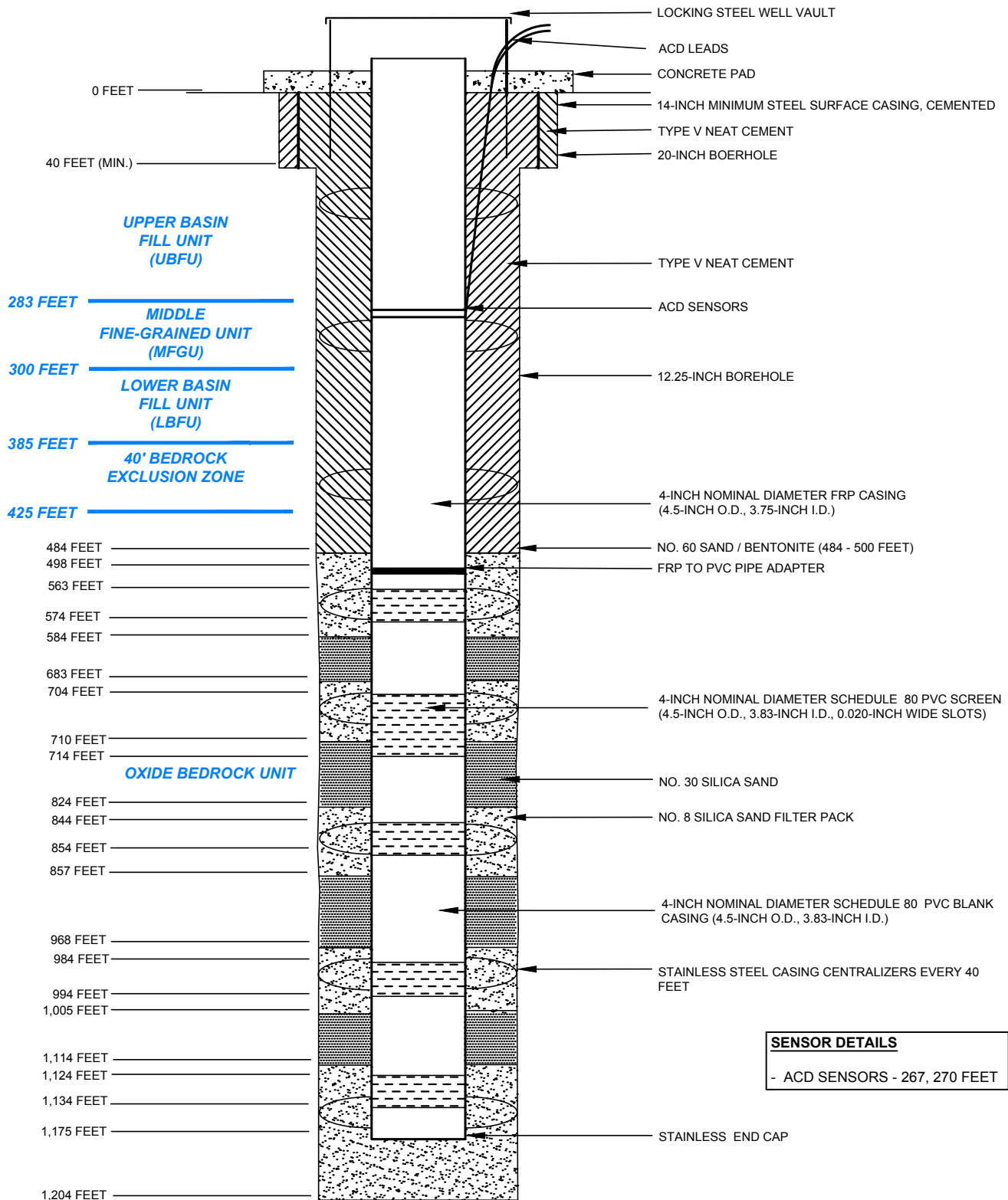
WELL LOCATIONS

FIGURE 1

APPENDIX A

Westbay Well As-Built Diagrams





SENSOR DETAILS
- ACD SENSORS - 267, 270 FEET

NOTES

1. WELL REGISTRATION NO.: 55-227227
2. CADASTRAL LOCATION: D(4-9) 28 CAC
3. MEASURING POINT ELEVATION: 1478.75 FEET AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ACD = ANNULAR CONDUCTIVITY DEVICE
9. DOWNHOLE EQUIPMENT INSTALLED BY WESTBAY INSTRUMENTS

**HALEY
ALDRICH**

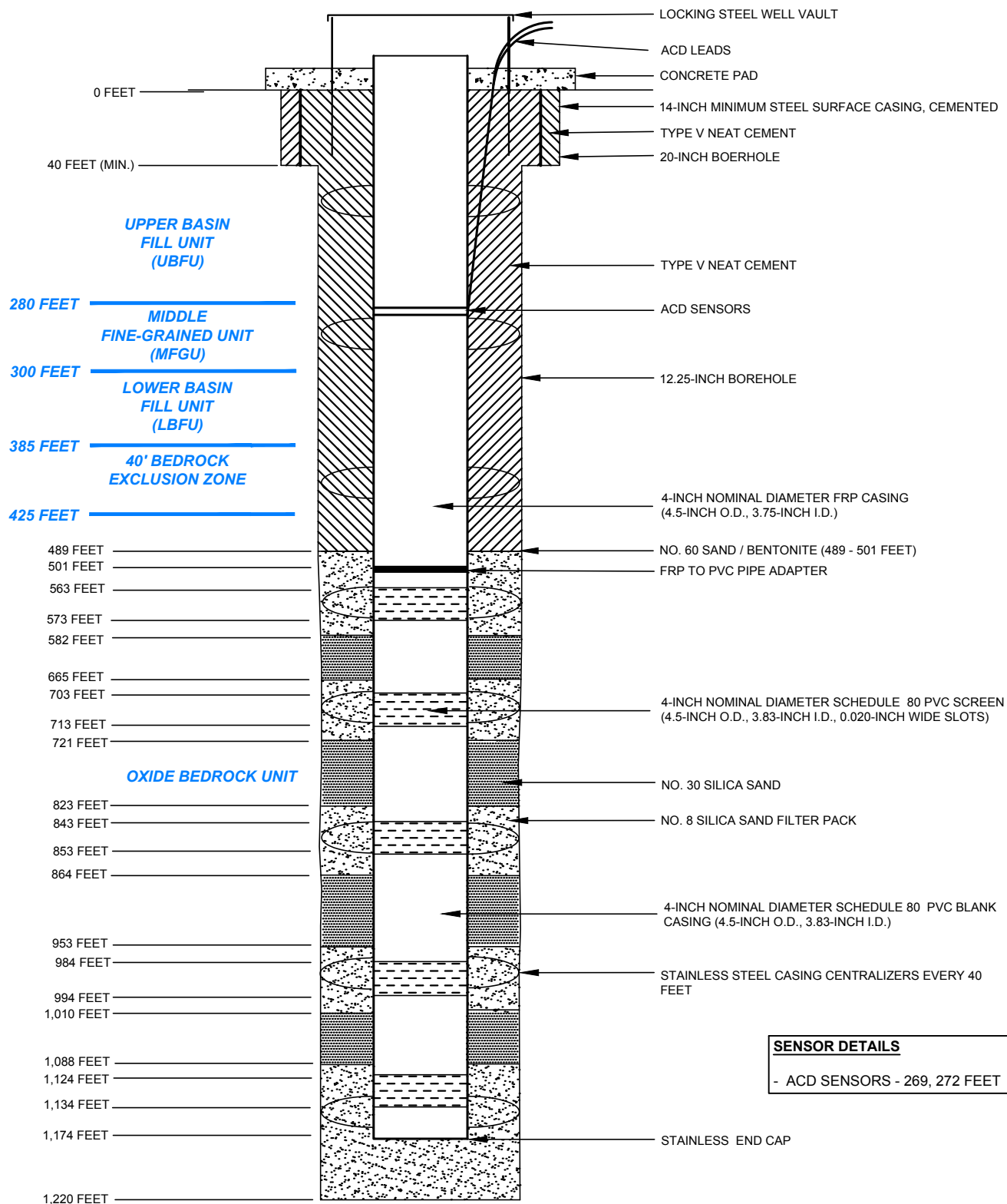
PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

WB-02 WESTBAY WELL AS-BUILT DIAGRAM

**FLORENCE
COPPER INC.**

SCALE: NOT TO SCALE
SEPTEMBER 2018

FIGURE 2



NOTES

1. WELL REGISTRATION NO.: 55-227228
2. CADASTRAL LOCATION: D(4-9) 28 CAC
3. MEASURING POINT ELEVATION: 1478.99 FEET AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ACD = ANNULAR CONDUCTIVITY DEVICE
9. DOWNHOLE EQUIPMENT INSTALLED BY WESTBAY INSTRUMENTS

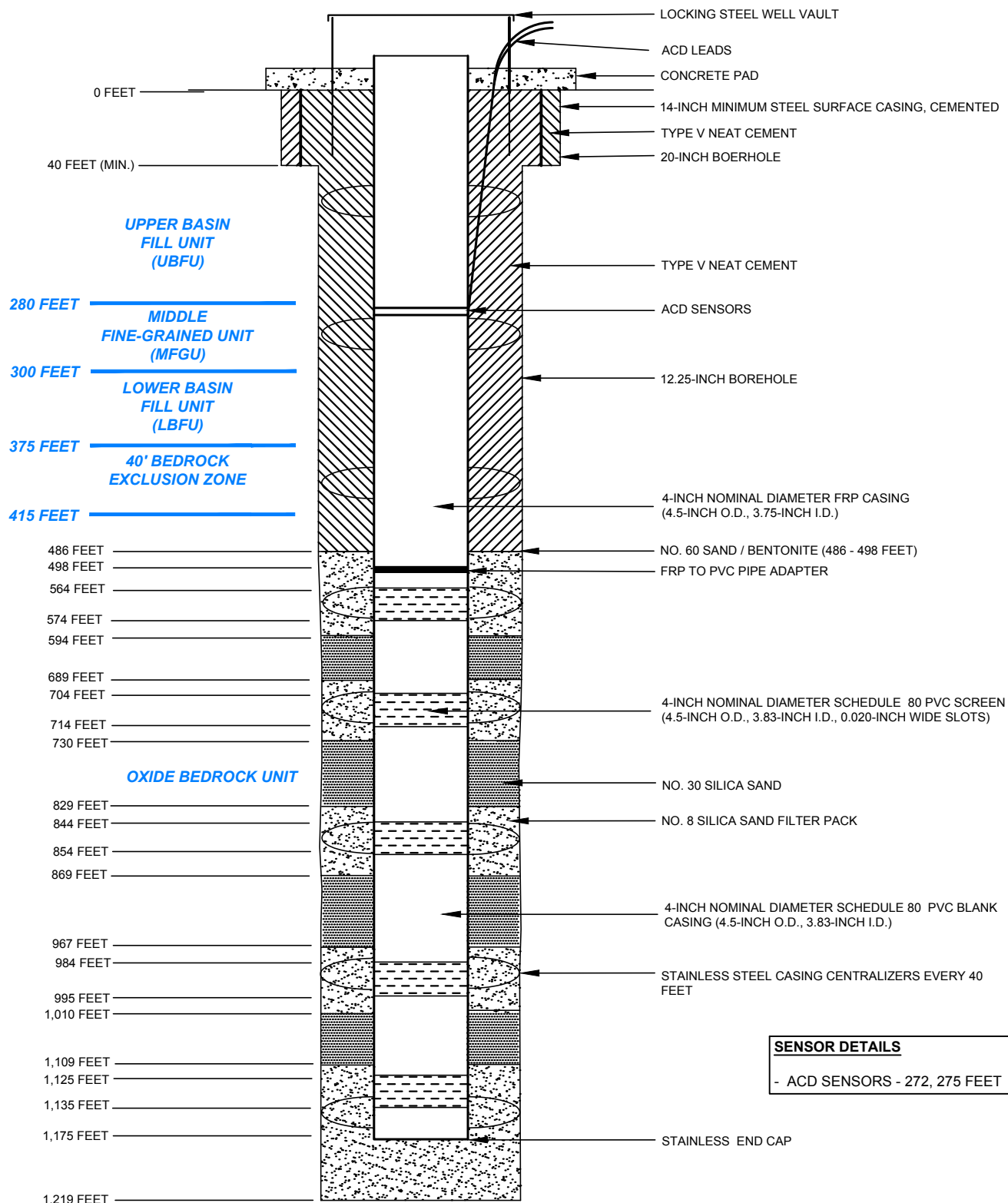


PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

WB-03 WESTBAY WELL AS-BUILT DIAGRAM



SCALE: NOT TO SCALE
SEPTEMBER 2018



NOTES

1. WELL REGISTRATION NO.: 55-227229
2. CADASTRAL LOCATION: D(4-9) 28 CAC
3. MEASURING POINT ELEVATION: 1479.79 FEET AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ACD = ANNULAR CONDUCTIVITY DEVICE
9. DOWNHOLE EQUIPMENT INSTALLED BY WESTBAY INSTRUMENTS



PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

WB-04 WESTBAY WELL AS-BUILT DIAGRAM



SCALE: NOT TO SCALE
SEPTEMBER 2018

APPENDIX B

Q4 2020 Temperature Logs



Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY FLORENCE COPPER				WELL ID WESTBAY WELL 1				FIELD WELL FIELD				COUNTY PINAL				STATE ARIZONA			
TYPE OF LOGS: TEMPERATURE																OTHER SERVICES			
MORE: N/A																N/A			
LOCATION																			
SEC				TWP				RGE											
PERMANENT DATUM								ELEVATION								K.B.			
LOG MEAS. FROM TOP OF CASING								ABOVE PERM. DATUM								D.F.			
DRILLING MEAS. FROM TOP OF CASING																G.L.			
DATE				12/1/20				TYPE FLUID IN HOLE				ACID WATER							
RUN No				1 & 2				MUD WEIGHT				N/A							
TYPE LOG				TEMPERATURE				VISCOSITY				N/A							
DEPTH-DRILLER				1200 FT				LEVEL				~ 202 FT.							
DEPTH-LOGGER				1154 FT				MAX. REC. TEMP.				94.6 DEG F							
BTM LOGGED INTERVAL				1154 FT				IMAGE ORIENTED TO:				N/A							
TOP LOGGED INTERVAL				SURFACE				SAMPLE INTERVAL				0.2 FT.							
DRILLER / RIG#				N/A				LOGGING TRUCK				PORTABLE							
RECORDED BY / Logging Eng.				T. GODSEY				TOOL STRING/SN				MSI DLP TEMP SN 1418							
WITNESSED BY				FLORENCE COPPER				LOG TIME: ON SITE/OFF SITE				06:00							
RUN BOREHOLE RECORD																			
NO.		BIT		FROM		TO		SIZE		WGT.		FROM		TO					
		? IN.		SURFACE		TOTAL DEPTH		5 IN.		STEEL		SURFACE		TOTAL DEPTH					
COMMENTS:																			

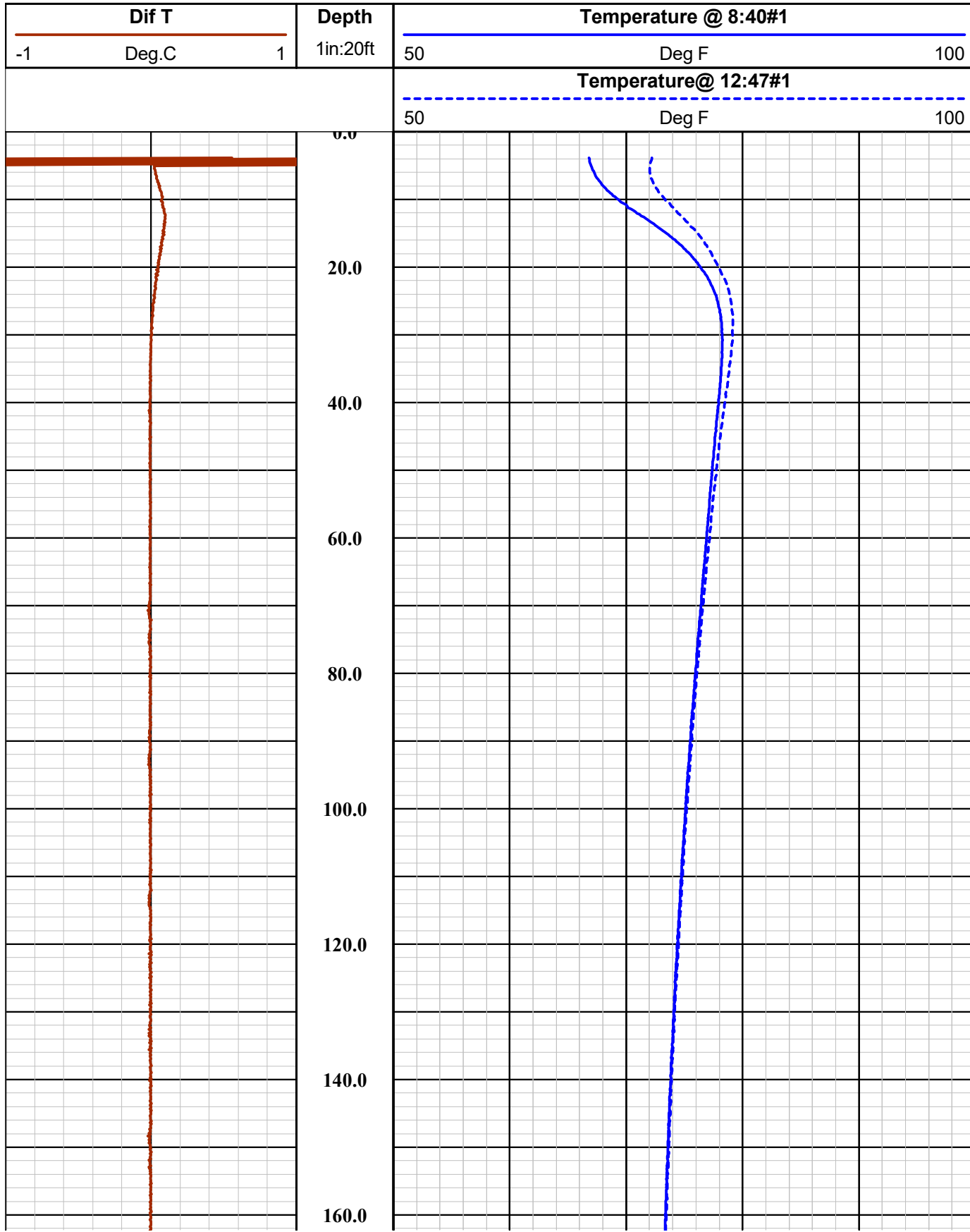
Tool Summary:					
Date	12/1/20	Date	12/1/20	Date	
Run No.	1	Run No.	2	Run No.	3
Tool Model	MSI DLP TEMP	Tool Model	MSI DLP TEMP	Tool Model	
Tool SN	1418	Tool SN	1418	Tool SN	
From	SURFACE	From	SURFACE	From	
To	1157 FT	To	1157 FT	To	
Recorded By	T. GODSEY	Recorded By	T. GODSEY	Recorded By	
Truck No	PORTABLE	Truck No	PORTABLE	Truck No	
Operation Check	11/30/20	Operation Check	11/30/20	Operation Check	
Calibration Check	11/30/20	Calibration Check	11/30/20	Calibration Check	
Time Logged	08:40	Time Logged	12:47	Time Logged	
Date		Date		Date	
Run No.	4	Run No.	5	Run No.	6
Tool Model		Tool Model		Tool Model	
Tool SN		Tool SN		Tool SN	
From		From		From	
To		To		To	
Recorded By		Recorded By		Recorded By	
Truck No		Truck No		Truck No	
Operation Check		Operation Check		Operation Check	
Calibration Check		Calibration Check		Calibration Check	
Time Logged		Time Logged		Time Logged	

Additional Comments:

Caliper Arms Used: N/A Calibration Points: N/A

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.



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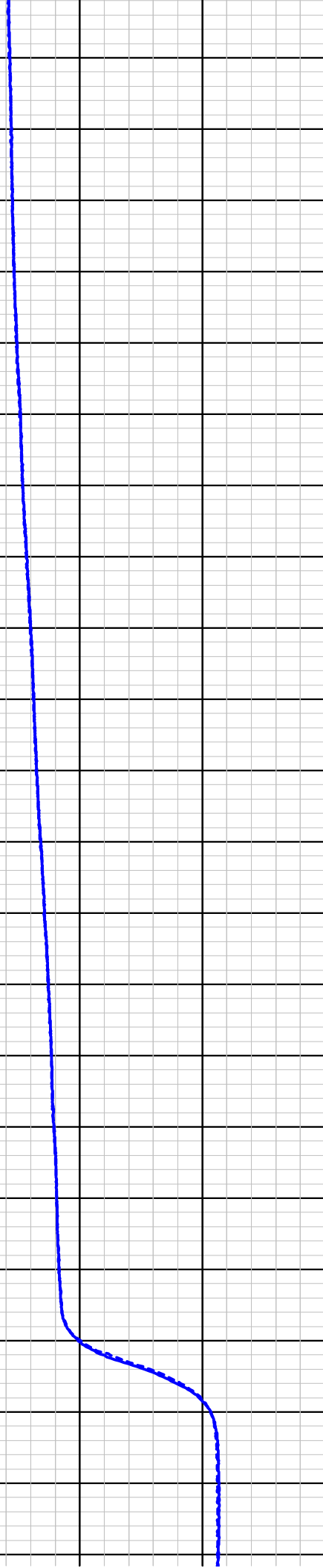
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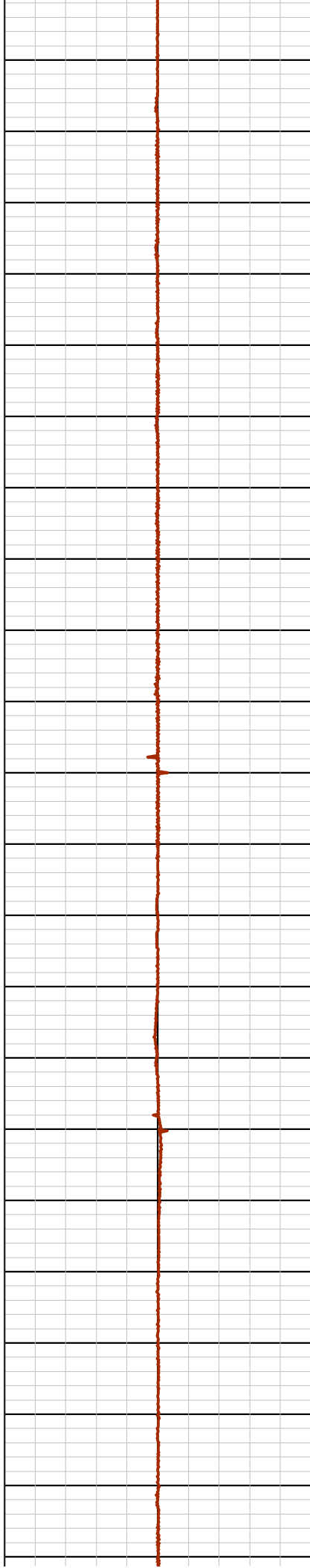
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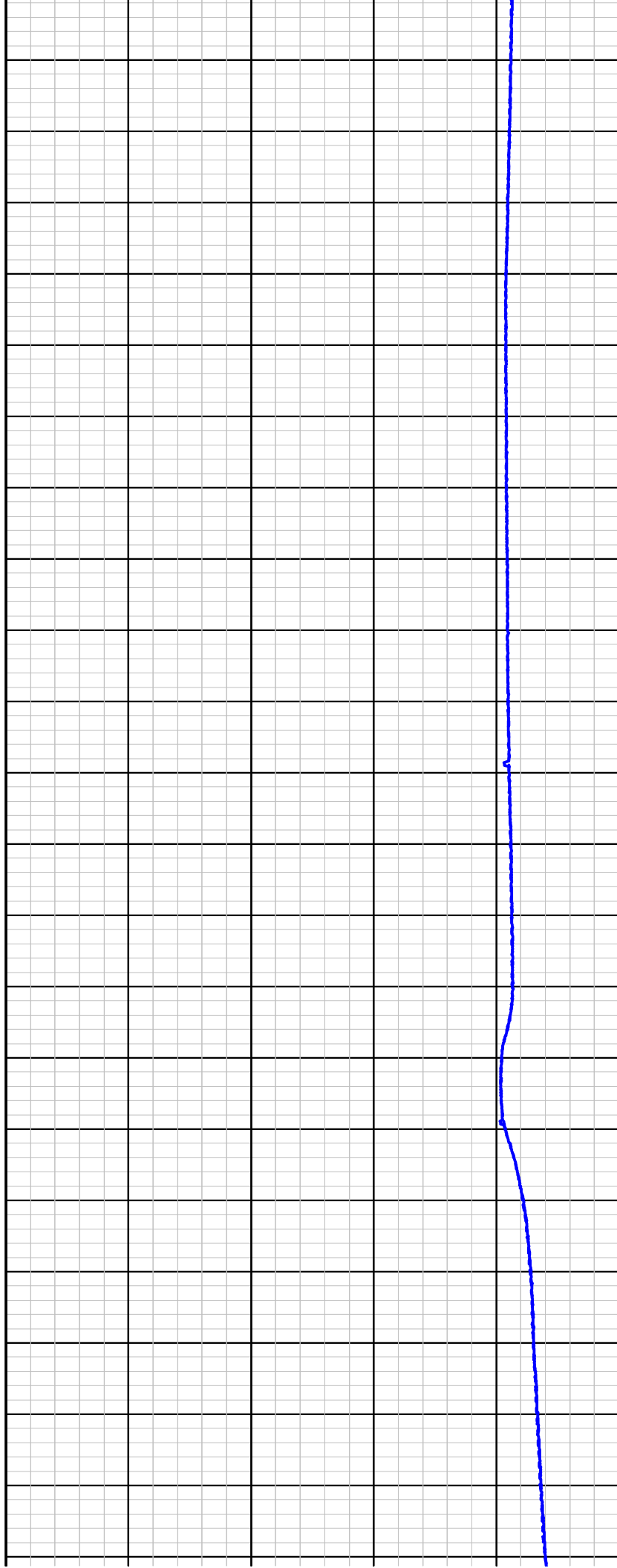
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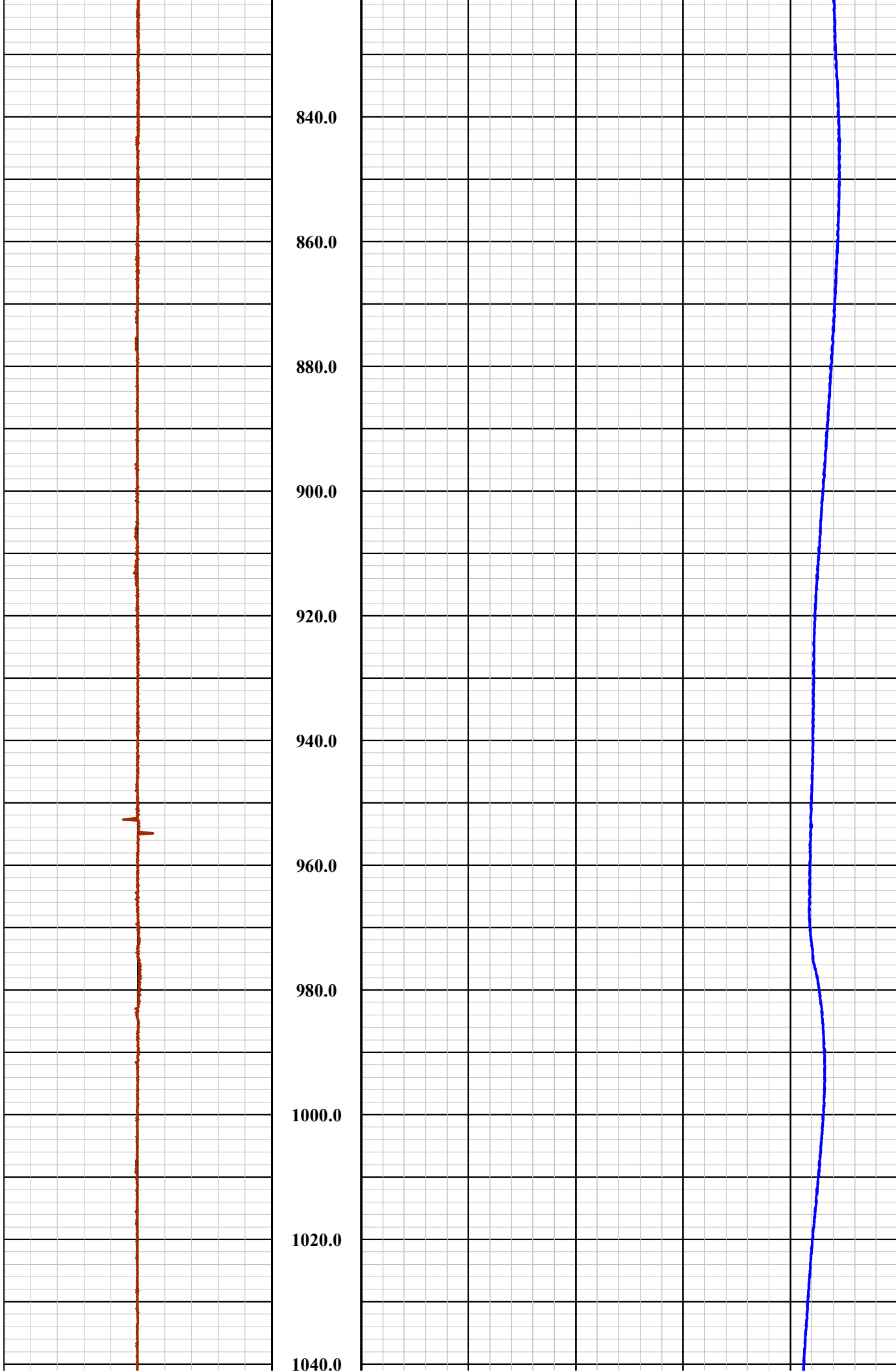
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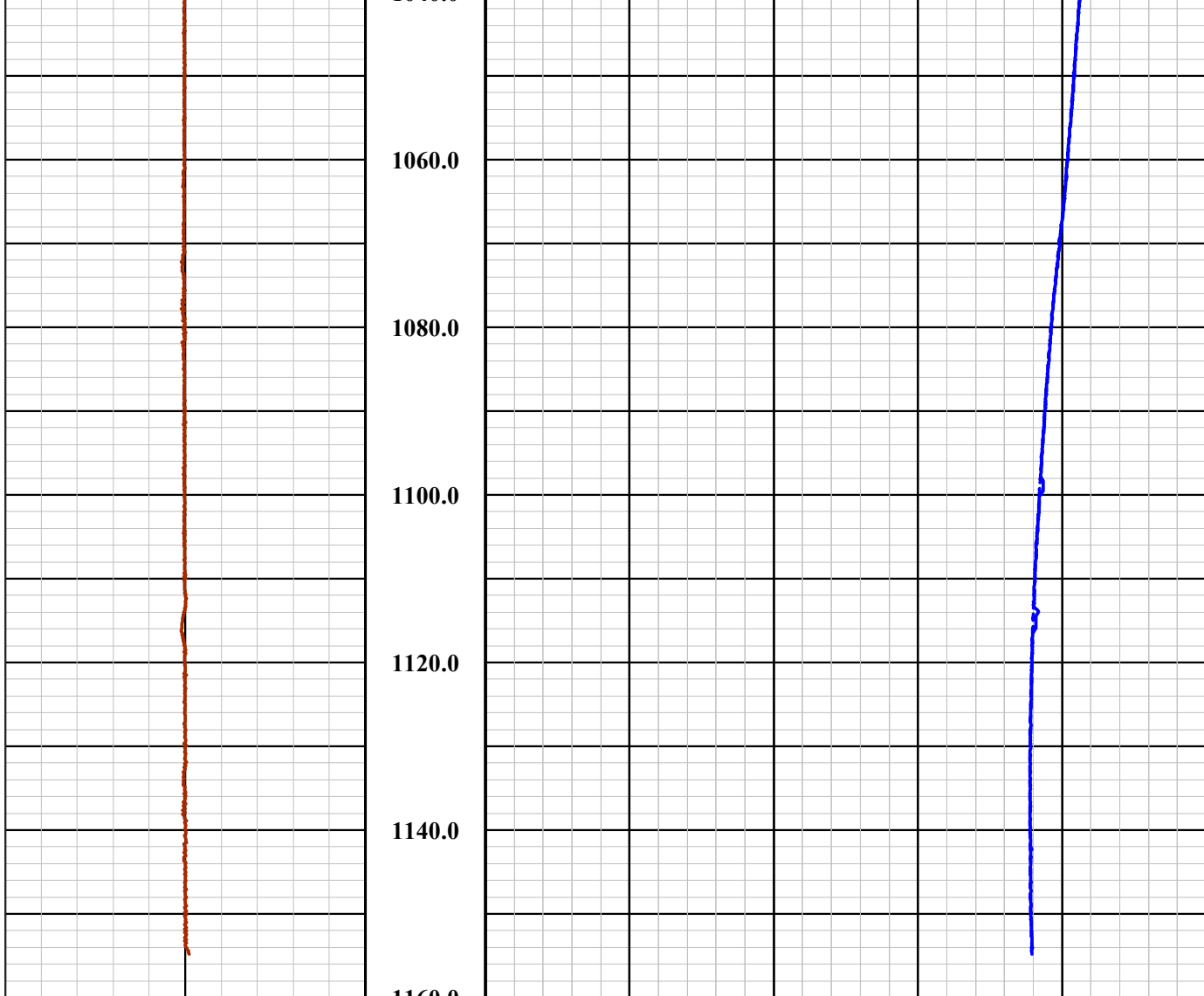
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			50	Deg F	100	
			Temperature@ 12:47#1			
-1	Deg.C	1	1in:20ft	50	Deg F	100
Dif T		Depth	Temperature @ 8:40#1			



Southwest Exploration Services, LLC

borehole geophysics & video services

Company	FLORENCE COPPER
Well	WESTBAY WELL 1
Field	WELL FIELD
County	PINAL
State	ARIZONA

Preliminary

TFR Summary



Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY FLORENCE COPPER		WELL ID WESTBAY WELL 2		FIELD WELL FIELD		COUNTY PINAL		STATE ARIZONA	
TYPE OF LOGS: TEMPERATURE		MORE: N/A		LOCATION		OTHER SERVICES		N/A	
PERMANENT DATUM		ELEVATION		SEC		TWP		RGE	
LOG MEAS. FROM TOP OF CASING		ABOVE PERM. DATUM		DATE		TYPE FLUID IN HOLE		ACID WATER	
DRILLING MEAS. FROM TOP OF CASING		G.L.		RUN No		1 & 2		MUD WEIGHT	
DATE		12/1/20		TYPE LOG		TEMPERATURE		VISCOSITY	
DEPTH-DRILLER		1200 FT		DEPTH-LOGGER		1157 FT		MAX. REC. TEMP.	
DEPTH-LOGGER		1157 FT		BITM LOGGED INTERVAL		1157 FT		IMAGE ORIENTED TO:	
TOP LOGGED INTERVAL		SURFACE		DRILLER / RIG#		N/A		LOGGING TRUCK	
RECORDED BY / Logging Eng.		T. GODSEY		TOOL STRING/SN		MSI DLP TEMP SN 1418		WITNESSED BY	
FLORENCE COPPER		LOG TIME: ON SITE/OFF SITE		06:00		RUN		BOREHOLE RECORD	
NO.		BIT		FROM		TO		SIZE	
? IN.		SURFACE		TOTAL DEPTH		5 IN.		STEEL	
COMMENTS:									

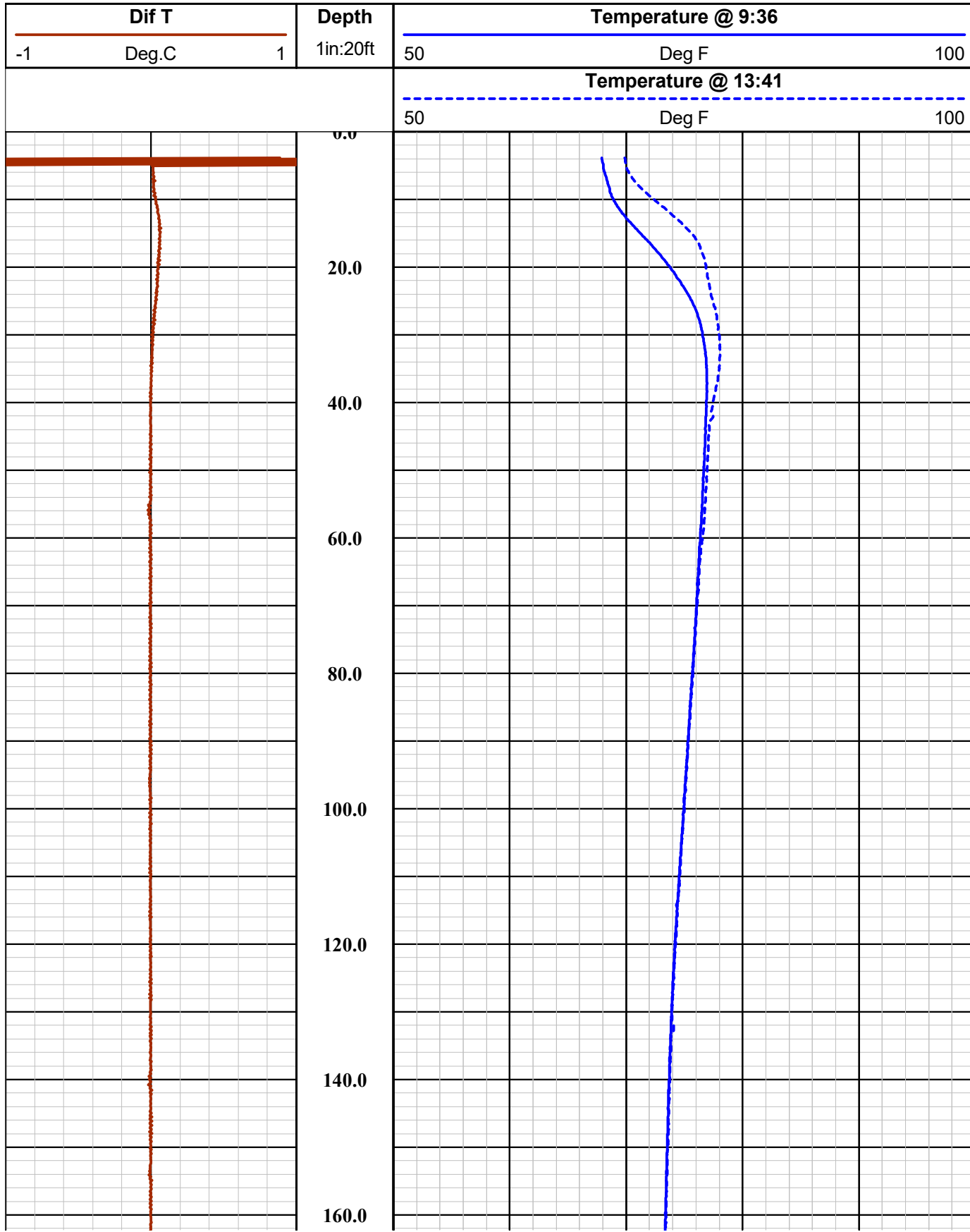
Tool Summary:					
Date	12/1/20	Date	12/1/20	Date	
Run No.	1	Run No.	2	Run No.	3
Tool Model	MSI DLP TEMP	Tool Model	MSI DLP TEMP	Tool Model	
Tool SN	1418	Tool SN	1418	Tool SN	
From	SURFACE	From	SURFACE	From	
To	1157 FT	To	1157 FT	To	
Recorded By	T. GODSEY	Recorded By	T. GODSEY	Recorded By	
Truck No	PORTABLE	Truck No	PORTABLE	Truck No	
Operation Check	11/30/20	Operation Check	11/30/20	Operation Check	
Calibration Check	11/30/20	Calibration Check	11/30/20	Calibration Check	
Time Logged	09:36	Time Logged	13:41	Time Logged	
Date		Date		Date	
Run No.	4	Run No.	5	Run No.	6
Tool Model		Tool Model		Tool Model	
Tool SN		Tool SN		Tool SN	
From		From		From	
To		To		To	
Recorded By		Recorded By		Recorded By	
Truck No		Truck No		Truck No	
Operation Check		Operation Check		Operation Check	
Calibration Check		Calibration Check		Calibration Check	
Time Logged		Time Logged		Time Logged	

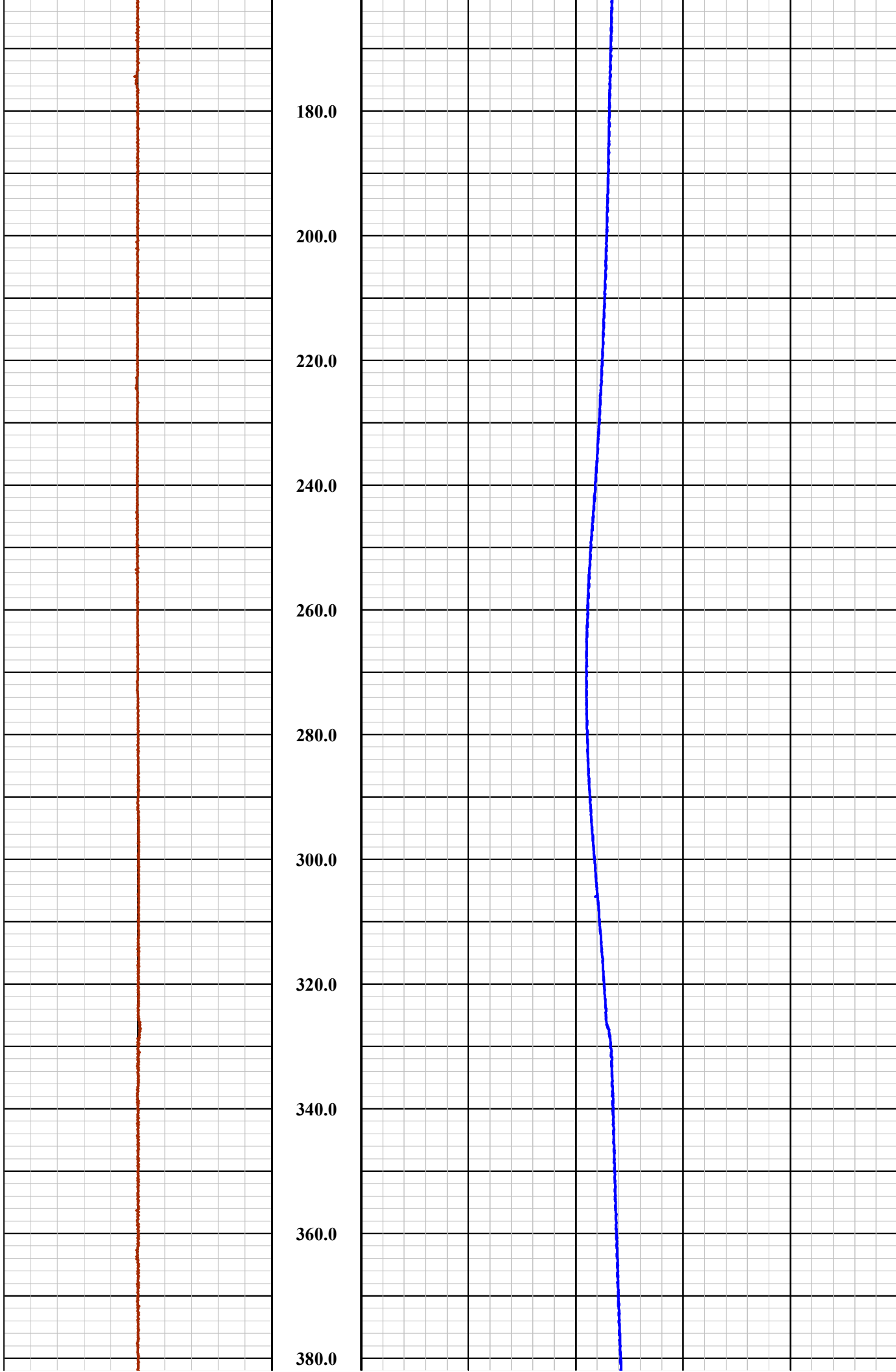
Additional Comments:

Caliper Arms Used: N/A Calibration Points: N/A

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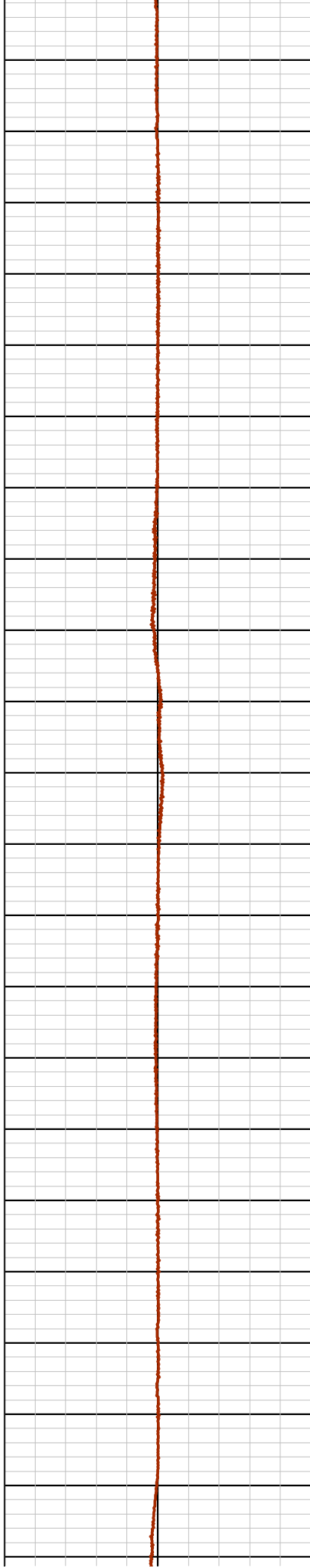
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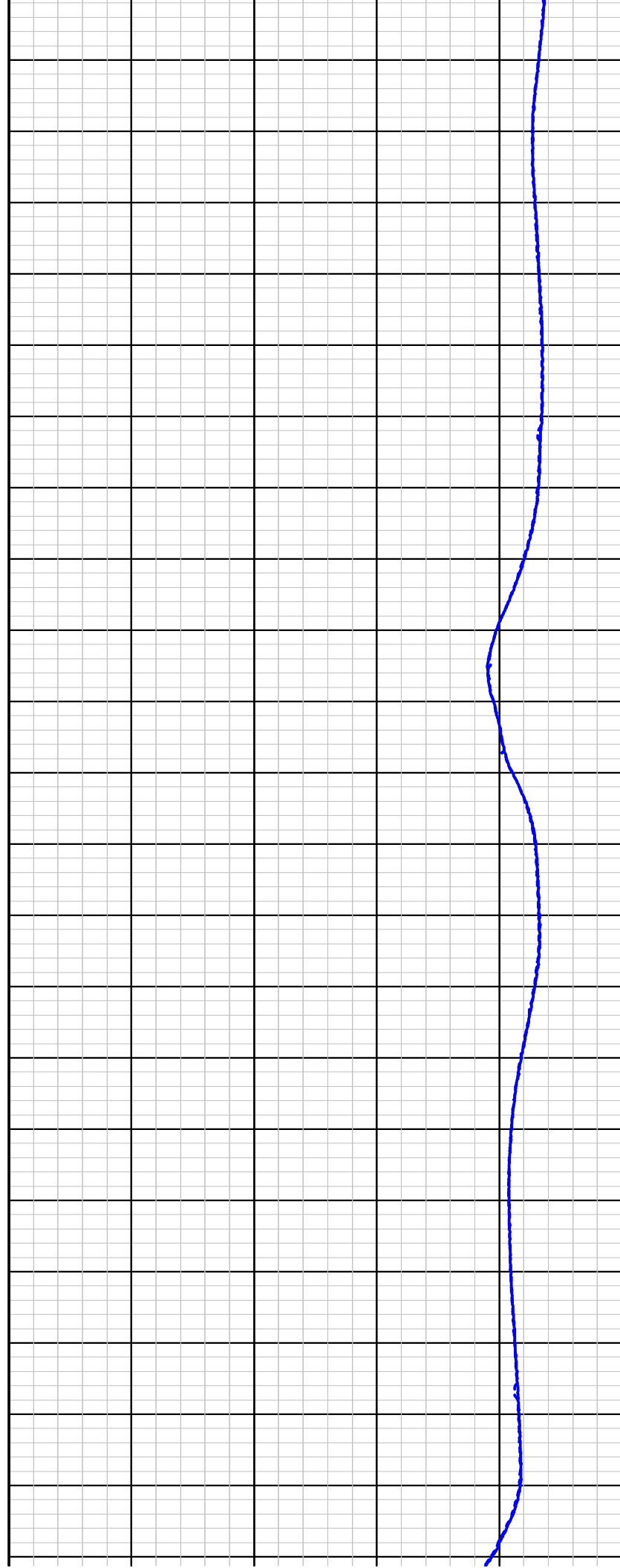
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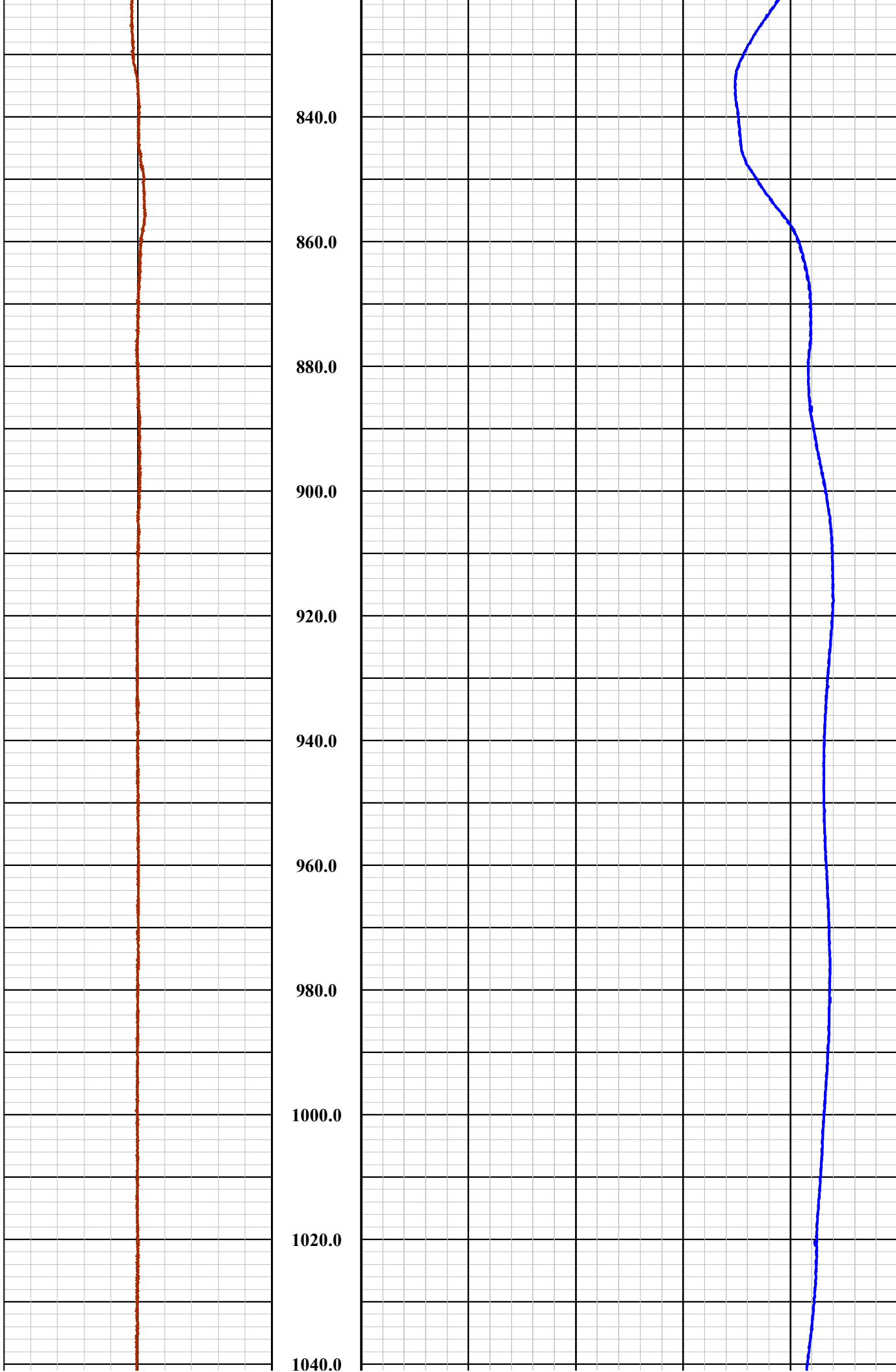
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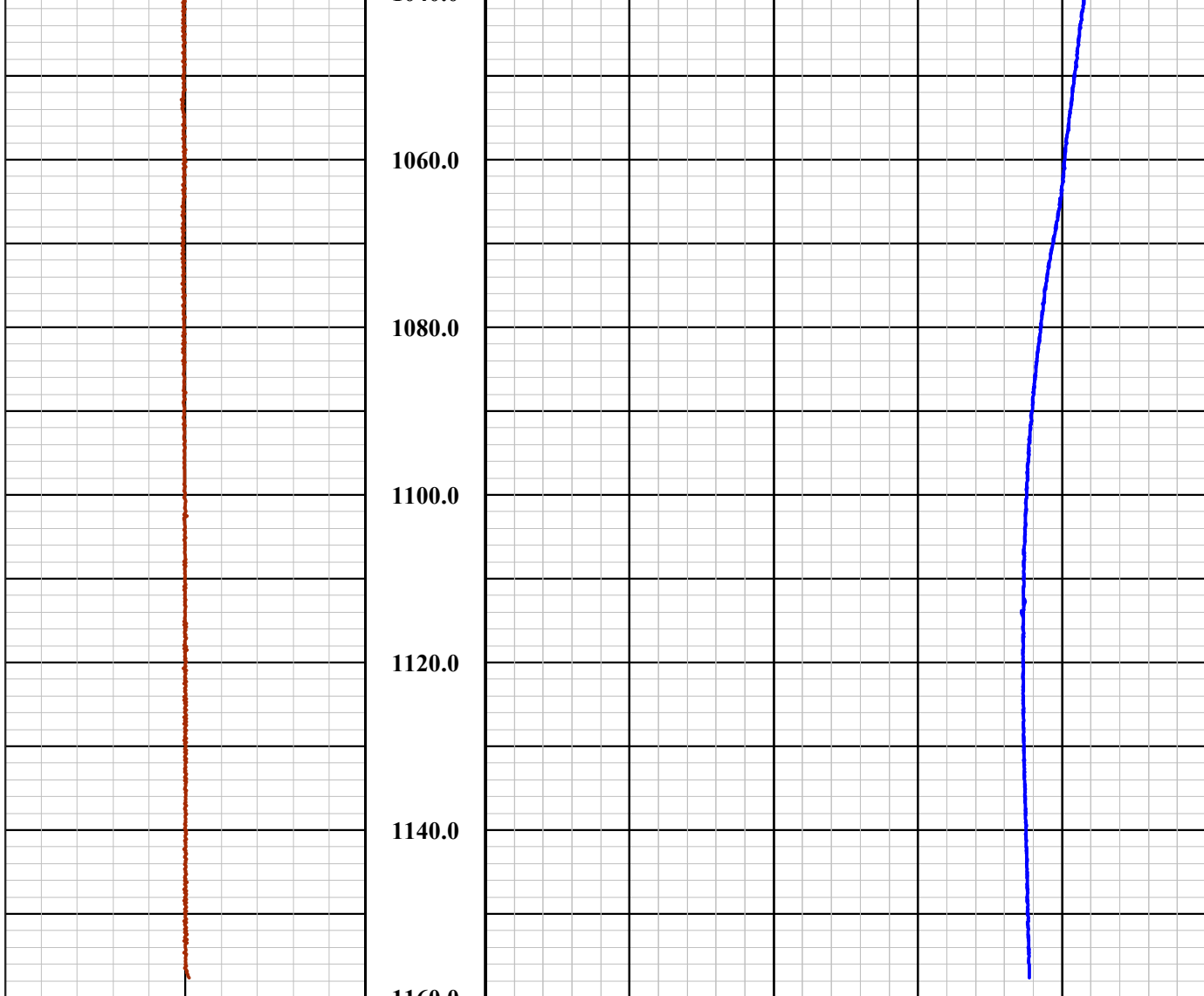
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			50	Deg F	100	

			Temperature @ 13:41			
-1	Deg.C	1	1in:20ft	50	Deg F	100
Dif T		Depth		-----		
				Temperature @ 9:36		



Southwest Exploration Services, LLC

borehole geophysics & video services

Company FLORENCE COPPER

Well WESTBAY WELL 2

Field WELL FIELD

County PINAL

State ARIZONA

Preliminary

TFR Summary



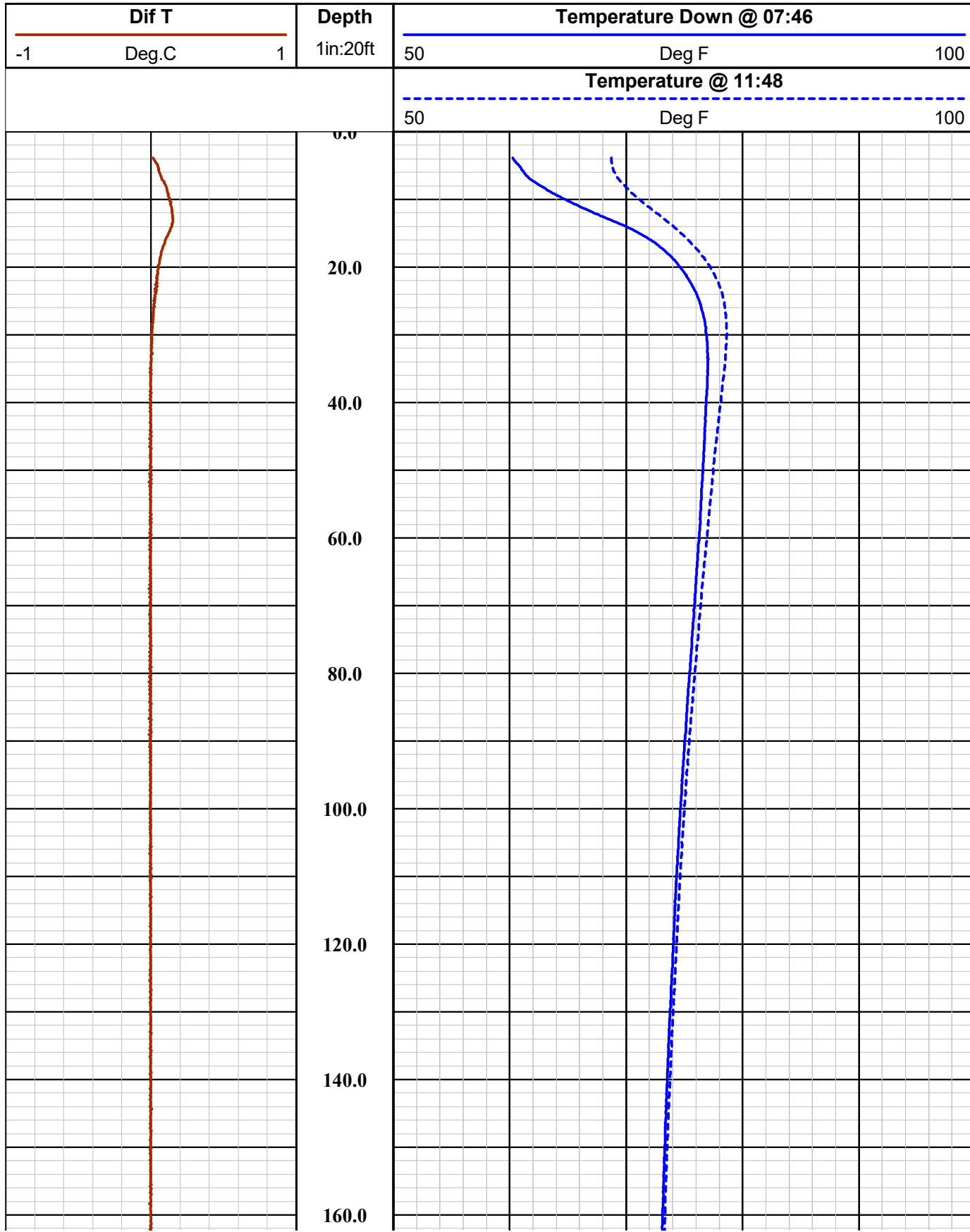
Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY FLORENCE COPPER			
WELL ID WESTBAY WELL 3		FIELD WELL FIELD	
COUNTY PINAL	STATE ARIZONA		
TYPE OF LOGS: TEMPERATURE			OTHER SERVICES
MORE: N/A			N/A
LOCATION			
SEC	TWP	RGE	
PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	TOP OF CASING	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	TOP OF CASING		G.L.
DATE	12/1/20	TYPE FLUID IN HOLE	ACID WATER
RUN No	1 & 2	MUD WEIGHT	N/A
TYPE LOG	TEMPERATURE	VISCOSITY	N/A
DEPTH-DRILLER	1200 FT	LEVEL	~ 247 FT.
DEPTH-LOGGER	1146 FT	MAX. REC. TEMP.	94.5 DEG F
BTM LOGGED INTERVAL	1146 FT	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	N/A	LOGGING TRUCK	310
RECORDED BY / Logging Eng.	T. GODSEY	TOOL STRING/SN	MSI DLP TEMP SN 1418
WITNESSED BY	FLORENCE COPPER	LOG TIME: ON SITE/OFF SITE	06:00
RUN	BOREHOLE RECORD		
NO.	BIT FROM	TO	CASING RECORD
	2 IN.	SURFACE	TOTAL DEPTH
			5 IN.
			STEEL
COMMENTS:			

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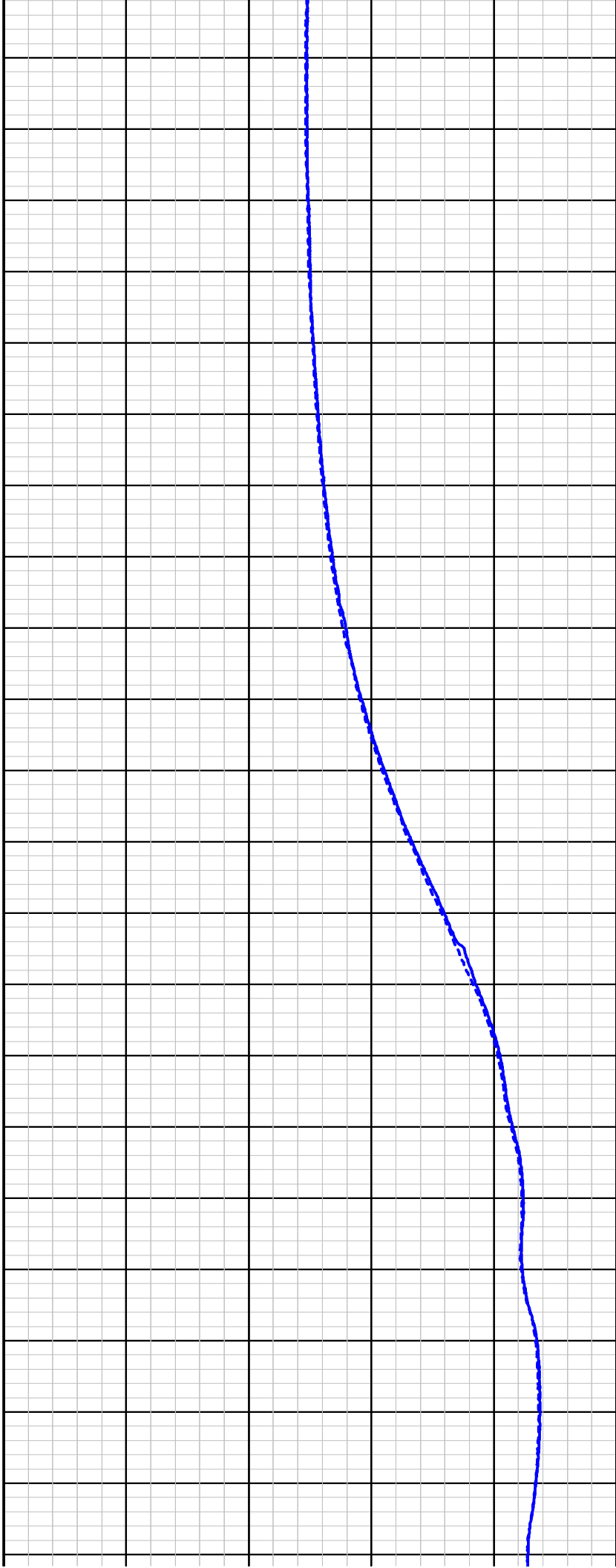
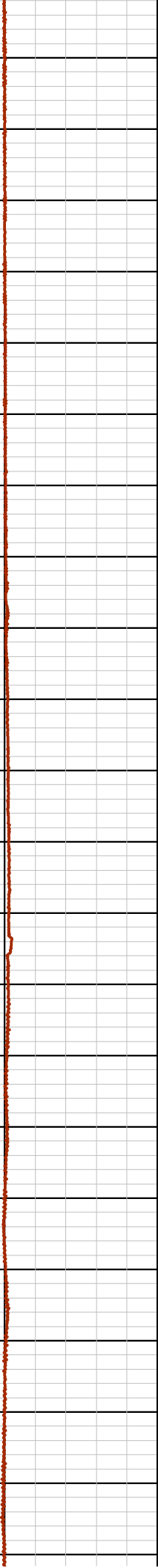
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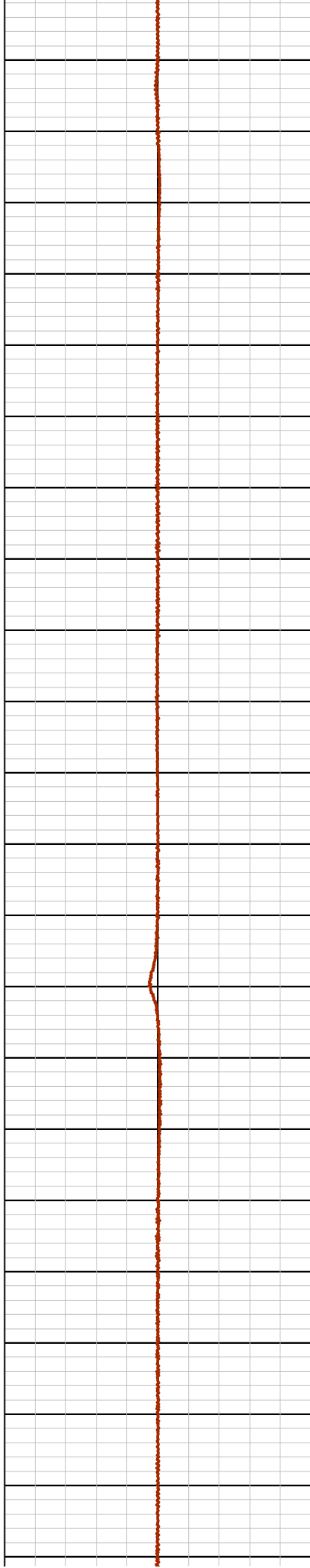
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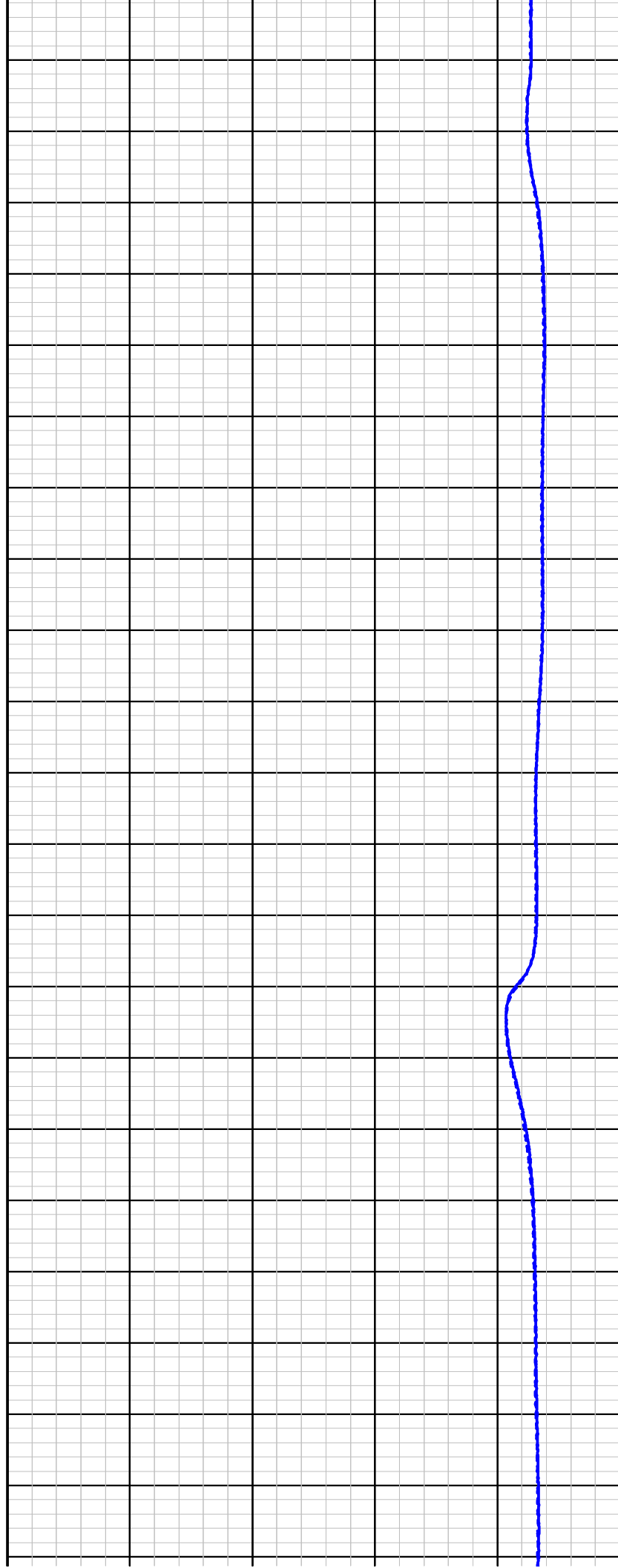
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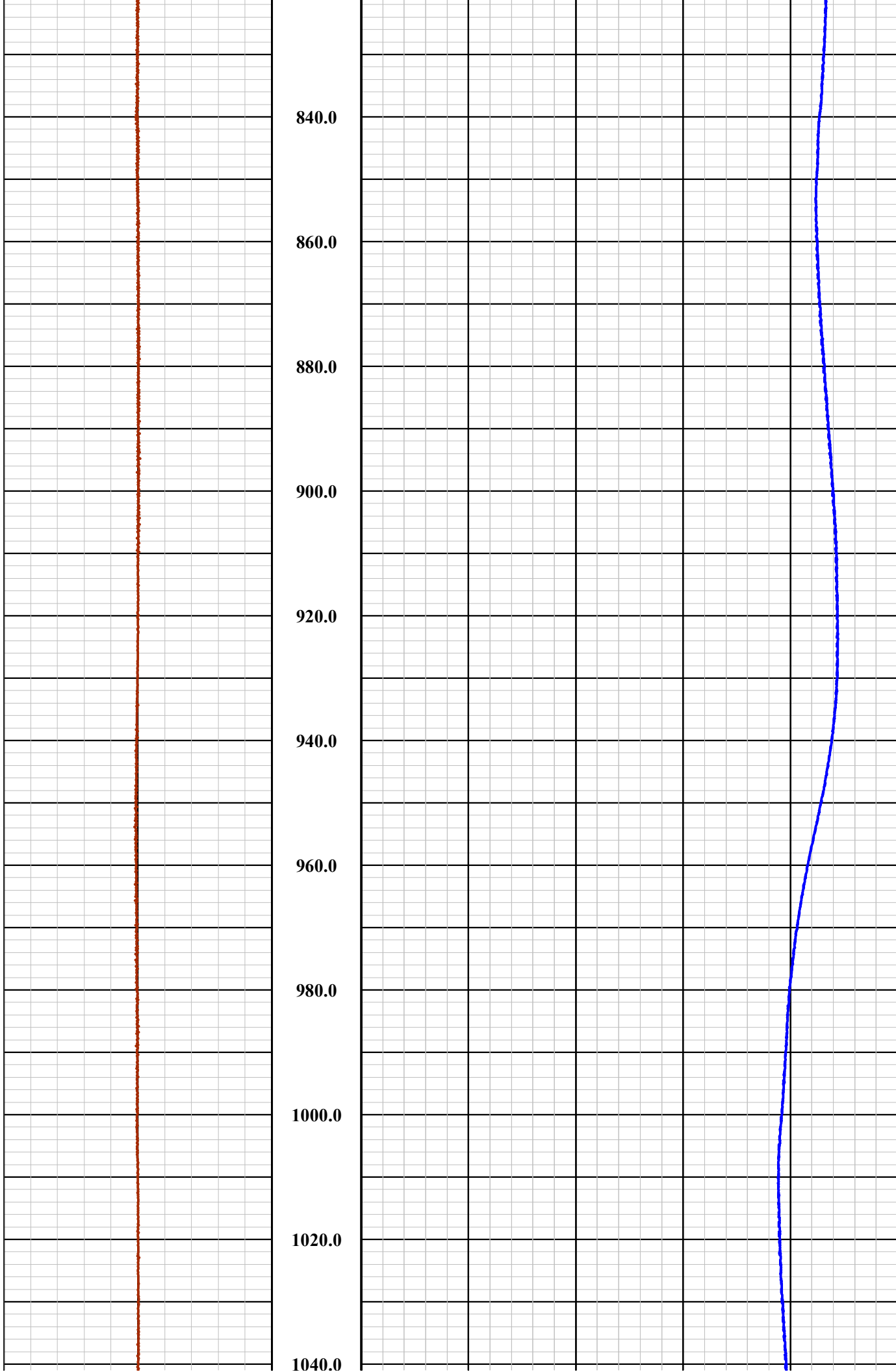
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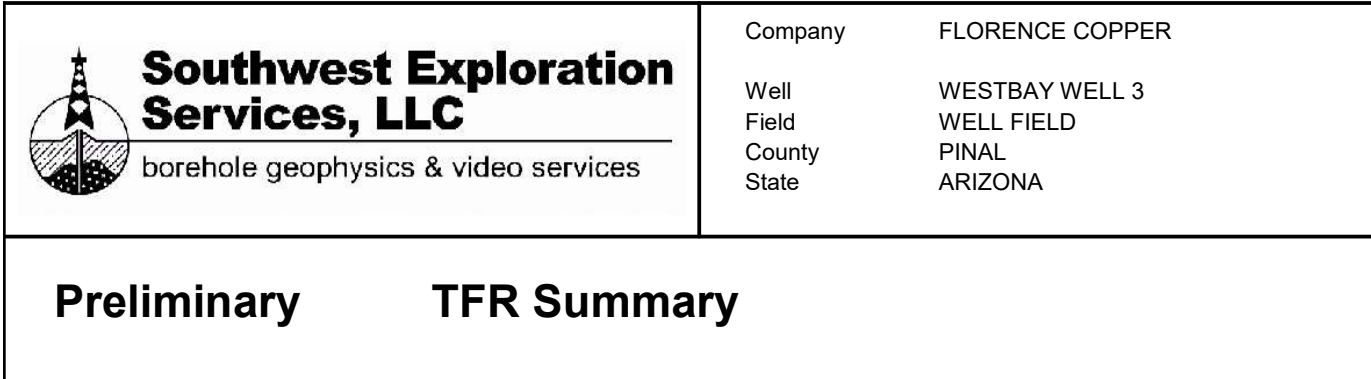
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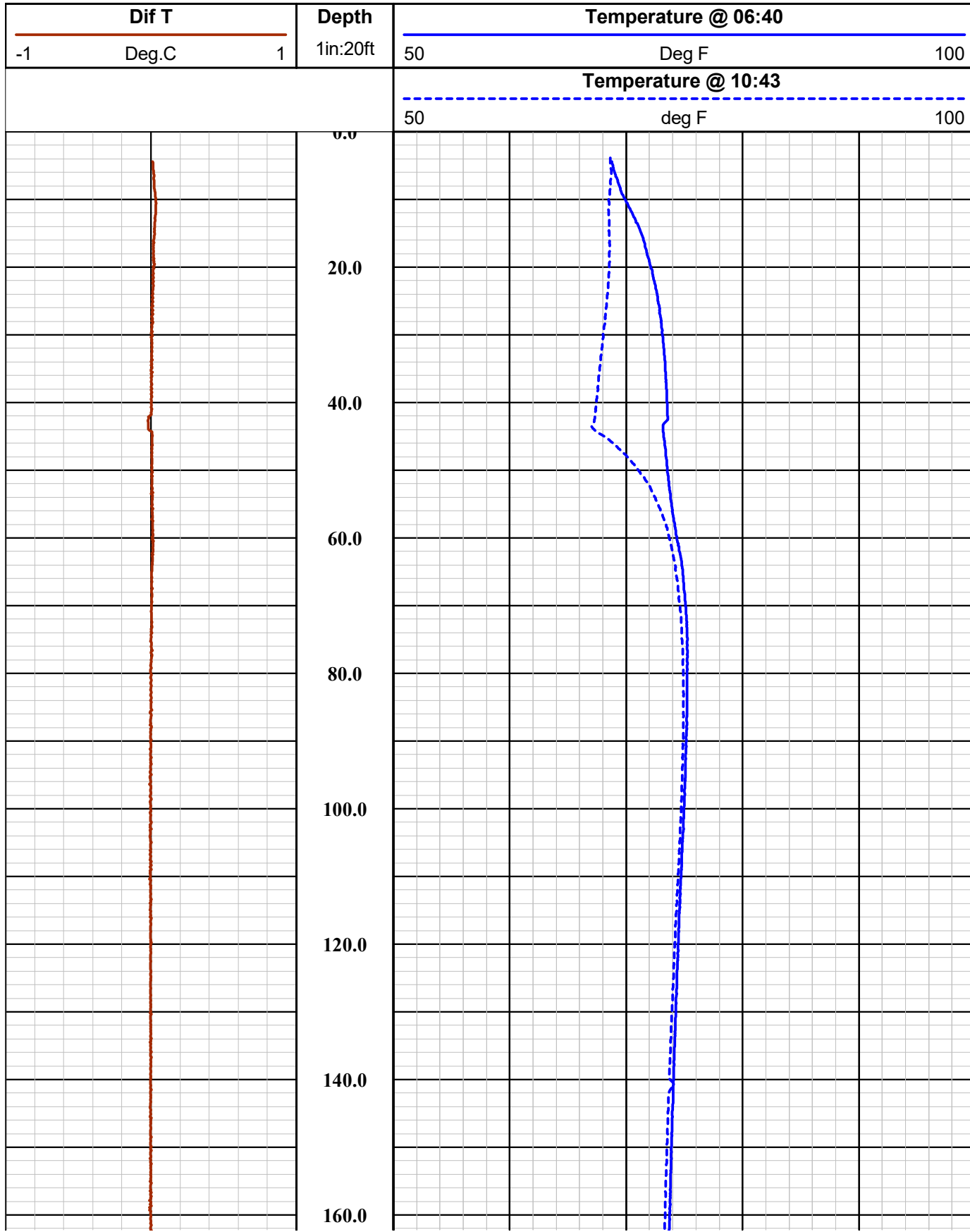
Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY FLORENCE COPPER									
WELL ID WESTBAY WELL 4									
FIELD WELL FIELD									
COUNTY PINAL									
STATE ARIZONA									
TYPE OF LOGS: TEMPERATURE						OTHER SERVICES			
MORE: N/A						N/A			
LOCATION									
SEC		TWP		RGE					
PERMANENT DATUM				ELEVATION		K.B.			
LOG MEAS. FROM		TOP OF CASING		ABOVE PERM. DATUM		D.F.			
DRILLING MEAS. FROM		TOP OF CASING				G.L.			
DATE		12/1/20		TYPE FLUID IN HOLE		ACID WATER			
RUN No		1 & 2		MUD WEIGHT		N/A			
TYPE LOG		TEMPERATURE-FLUID RES.		VISCOSITY		N/A			
DEPTH-DRILLER		1200 FT		LEVEL		~ 262 FT.			
DEPTH-LOGGER		1158 FT		MAX. REC. TEMP.		94.3 DEG F			
BTM LOGGED INTERVAL		1158 FT		IMAGE ORIENTED TO:		N/A			
TOP LOGGED INTERVAL		SURFACE		SAMPLE INTERVAL		0.2 FT.			
DRILLER / RIG#		N/A		LOGGING TRUCK		310			
RECORDED BY / Logging Eng.		T. GODSEY		TOOL STRING/SN		MSI DLP TEMP SN 1418			
WITNESSED BY		FLORENCE COPPER		LOG TIME: ON SITE/OFF SITE		06:00			
RUN		BOREHOLE RECORD		CASING RECORD					
NO.		BIT FROM		TO		SIZE		WGT.	
		? IN.		SURFACE		TOTAL DEPTH		5 IN.	
								STEEL	
COMMENTS:									

Disclaimer:

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220.0

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260.0

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300.0

320.0

340.0

360.0

380.0



400.0

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440.0

460.0

480.0

500.0

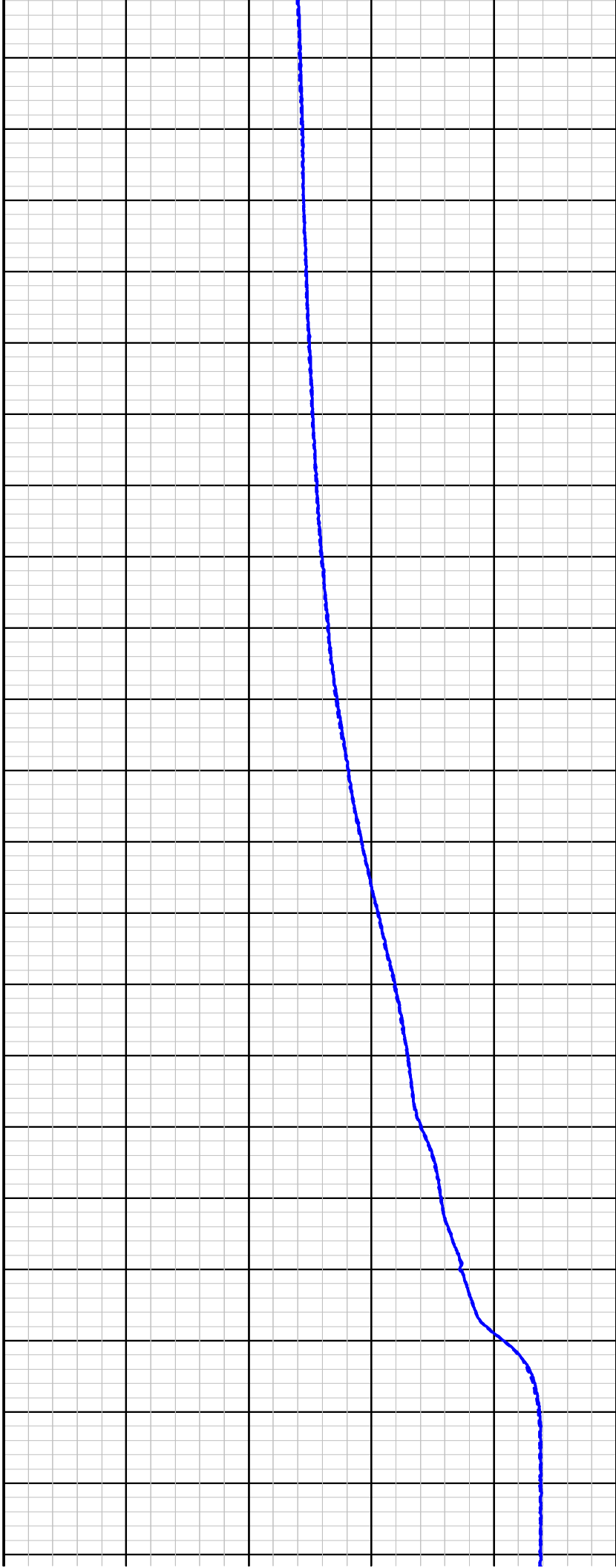
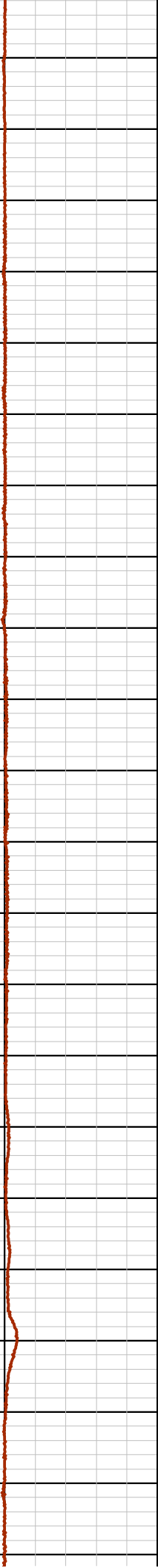
520.0

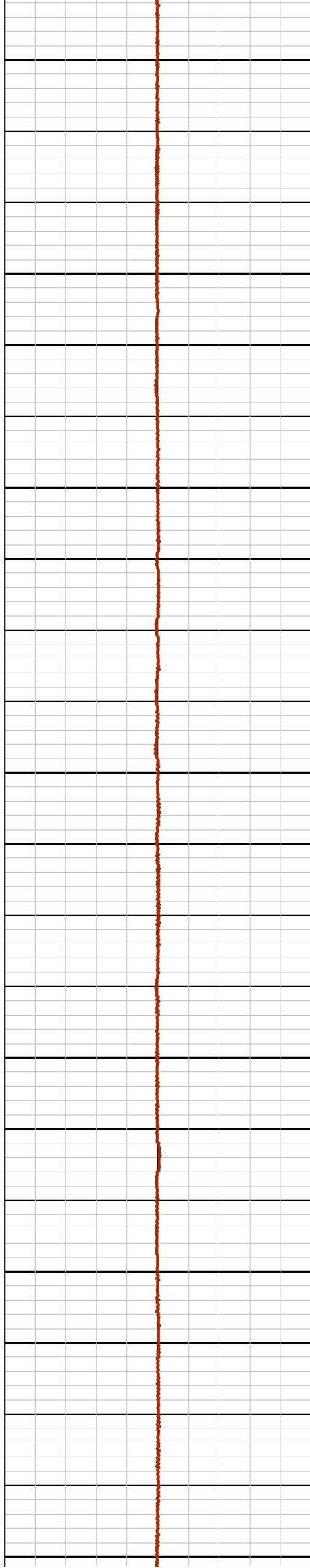
540.0

560.0

580.0

600.0





620.0

640.0

660.0

680.0

700.0

720.0

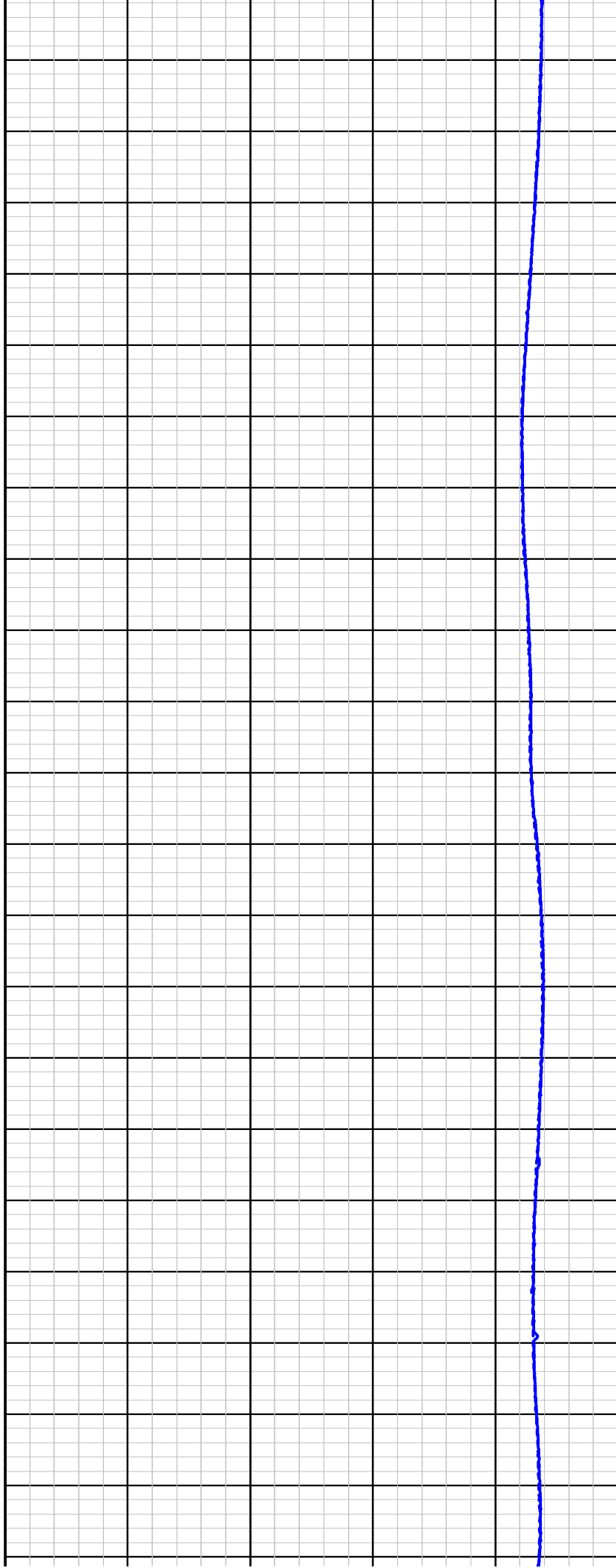
740.0

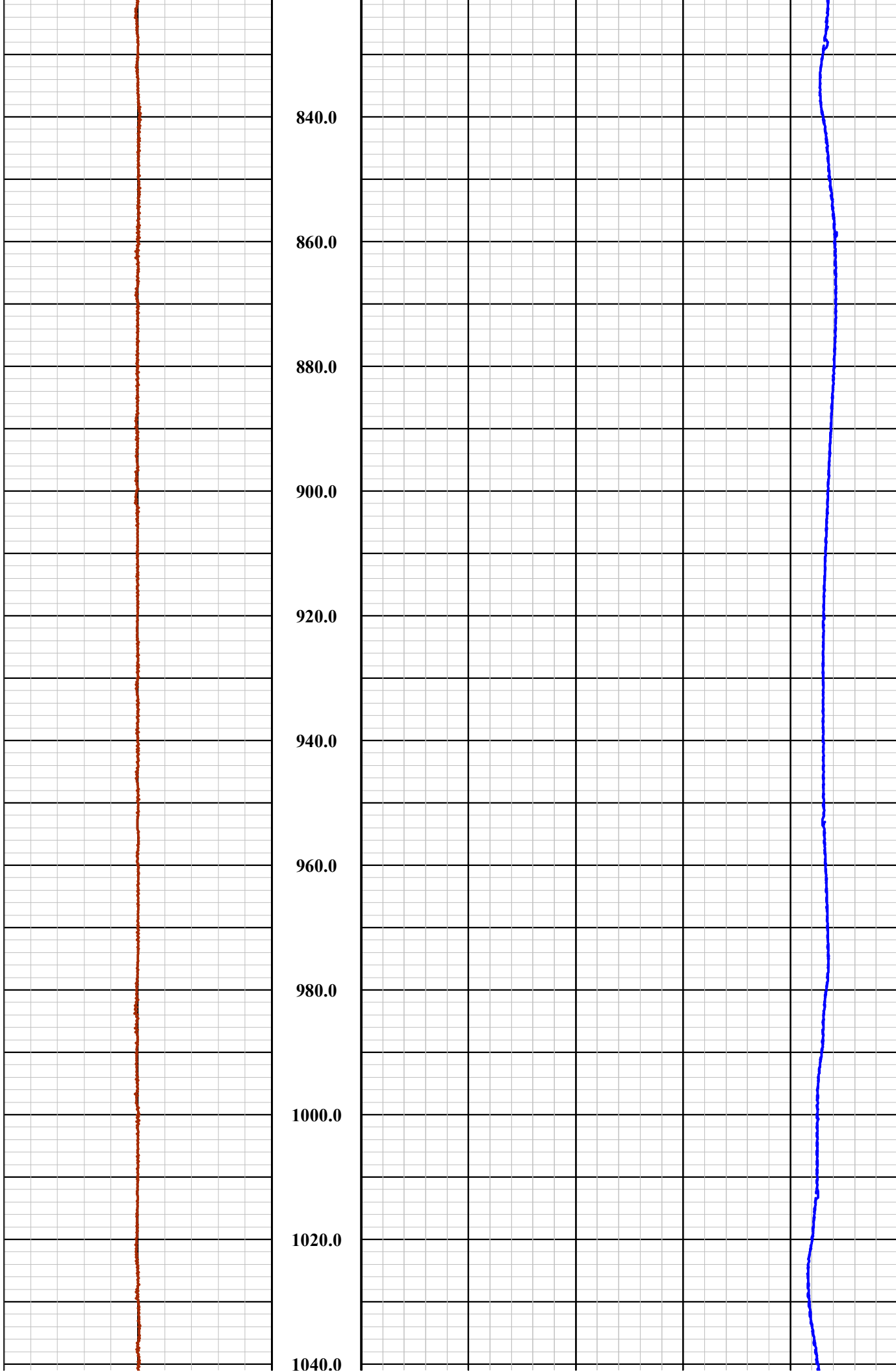
760.0

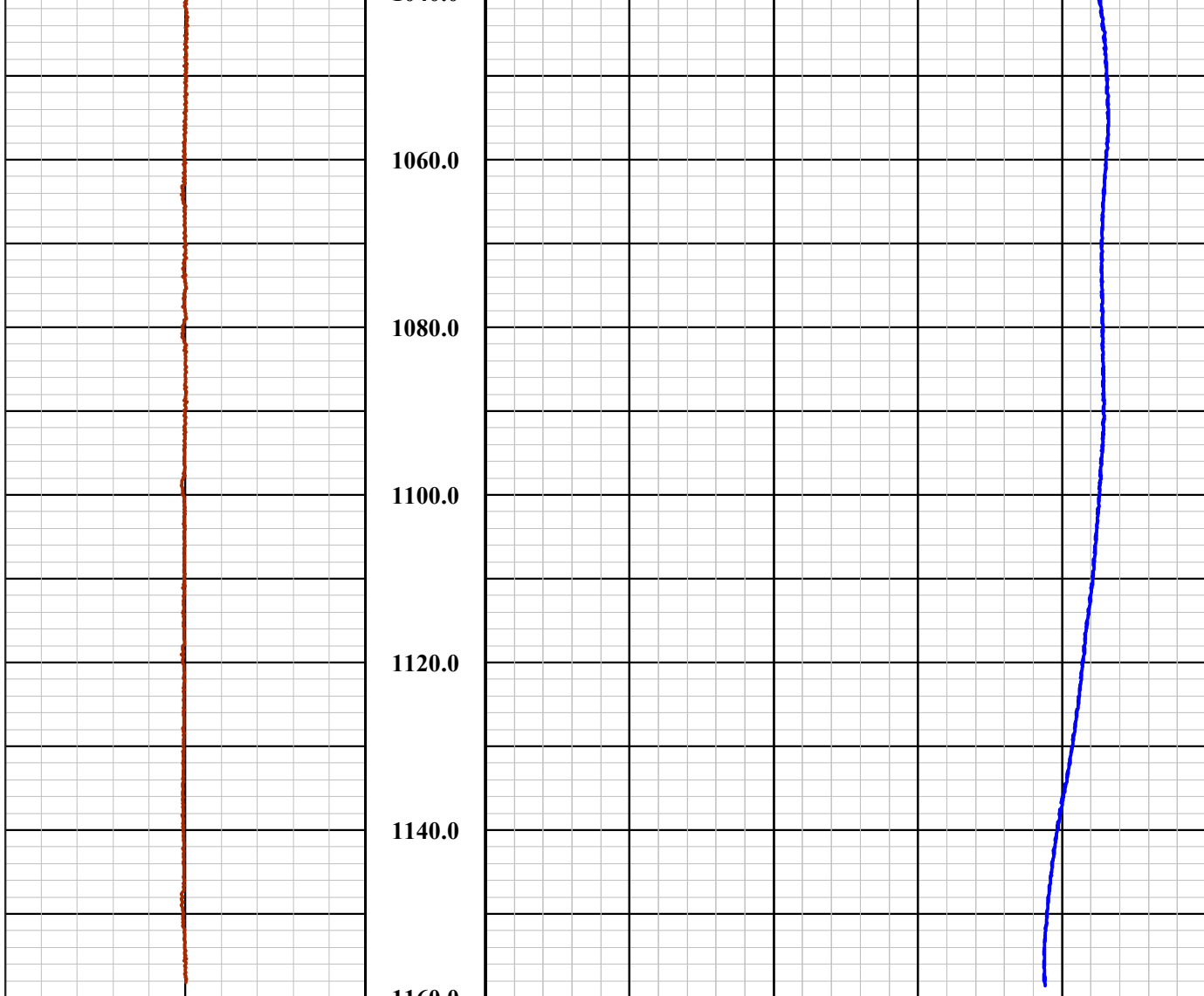
780.0

800.0

820.0







		50deg F100	
		Temperature @ 10:43	
-1	Deg.C1	50	Deg F100
Dif T		Temperature @ 06:40	
1in:20ft			
Depth			



Southwest Exploration Services, LLC

borehole geophysics & video services

Company	FLORENCE COPPER
Well	WESTBAY WELL 4
Field	WELL FIELD
County	PINAL
State	ARIZONA

Preliminary

TFR Summary

APPENDIX C

Daily Average Flow Rates and Water Level Elevations

APPENDIX C-1**DAILY AVERAGE FLOW RATES FOR INJECTION****AND RECOVERY WELLS DURING TEMPERATURE LOGGING**

FLORENCE COPPER, INC.

FLORENCE, ARIZONA

Date	Daily Average Flow Rate in Gallons per Minute													
	I-01	I-02	I-03*	I-04	R-01	R-02	R-03	R-04	R-05	R-06	R-07	R-08	R-09	O-03
12/1/2020	34.96	35.86	0.00	36.23	7.58	7.43	10.10	9.40	9.60	7.42	12.63	9.90	40.00	5.35

*I-03 down for MIT

APPENDIX C-2**DAILY AVERAGE WATER LEVEL ELEVATIONS****DURING TEMPERATURE LOGGING**

FLORENCE COPPER, INC.

FLORENCE, ARIZONA

Date	Daily Average Water Level Elevation in Feet Above Mean Sea Level															
	R-01	R-02	R-03	R-04	R-05	R-06	R-07	R-08	R-09	O-01	O-02	O-03	O-04	O-05	O-06	O-07
12/1/2020	1232.25	1228.64	1129.37	1166.75	1197.13	1209.34	1242.75	1238.12	1213.96	1244.30	1245.43	1242.32	1245.35	1255.14	1245.04	1245.51